

## REMARKS/ARGUMENTS

### In the Claims:

Claims 1, and 3-101 remain pending in the present application. Claims 1, 4-9, 12, 13, 30, 38-46, 62, 64, 65, 69, 73, 74-80, and 93 have been amended.

### Objection to Claims 38 and 74

The Examiner objected to claims 38 and 74 as containing language that lacks a proper antecedent basis, and additionally objected to claim 74 as being misnumbered. Applicant has amended claims 38 and 74 to more clearly describe the present invention. Claim 74, as filed, has also been properly renumbered as claim 73. Consequently, Applicant submits that claims 38 and 74 now have a proper antecedent basis, and the claims are properly numbered. As such, the Examiner's rejection may now be properly withdrawn.

### Rejection of Claims 9, 12, 64, 65, 69, and 74-101 Under 35 U.S.C. § 112

The Examiner rejected claims 9, 12, 64, 65, 69, and 74-101 under 35 U.S.C. § 112, second paragraph as being indefinite. Applicant has amended claims 9, 12, 64, 65, 69, and 74 to more clearly describe the present invention. Consequently, Applicant submits that the rejected claims have been rendered definite, and the Examiner's rejection may now be properly withdrawn.

Rejection of Claims 1-19, 21-23, 29-55, 58-60 and 66-73 Under 35 U.S.C. § 103(a)

The Examiner rejected claims 1-19, 21-23, 29-55, 58-60 and 66-73 under 35 U.S.C. § 103(a) as being unpatentable over Hubbard et al. (WO 97/47678 A1)) in view of Cuellar et al. (US 5,482,745). Applicant has amended independent claims 1 and 38. As Applicant does not believe Hubbard et al. in view of Cuellar et al. to teach or suggest the subject matter of claims 1-19, 21-23, 29-55, 58-60 and 66-73, as amended, the rejection is respectfully traversed.

The present invention is directed to a method of improving the adhesion between the surface of a thermoplastic polyolefin element (plastic element) and a coating material, namely paint, applied thereto. The method of the present invention operates by applying an adhesion promoter mixture to the plastic element, and then drying the plastic element so that a dried layer of adhesion promoter remains coated thereto. Consequently, as is well known and would be understood by one skilled in the art, any defects (e.g., runs, sags, streaks, etc.) in the dried layer of adhesion promoter will manifest themselves in the subsequently applied paint coat. This is also true of primer coatings and virtually any other materials that might be applied to an object prior to a paint coat. As such, it is of great importance to the present invention that the mixture be applied in a manner that minimizes or, more preferably, eliminates, defects in the resulting dried layer of adhesion promoter.

The present invention employs various devices and techniques to minimize or eliminate defects in the dried adhesion promoter layer including, for example: applying the mixture to the plastic element within an application enclosure having a controlled atmosphere; cooling the plastic element to approximately the temperature within the

application enclosure; regulating one or more of a flow rate of the mixture, a discharge pattern of spray nozzles used to apply the mixture, an angle of the spray nozzles, a distance of the spray nozzles from the plastic element, and/or the orientation of the plastic element; employing a gravity tank to deliver the mixture to the spray nozzles; and drying the mixture-covered plastic element in a controlled drying enclosure. While the method of the present invention helps to ensure that the entirety of the plastic element is substantially coated with the mixture, it also operates to minimize agitation of the mixture as it is delivered to the application device and as it contacts the plastic element. The result of the method of the present invention is a plastic element that is thoroughly covered by a dried adhesion promoter layer with minimal or no defects that can be transferred to the subsequently applied paint coat.

Hubbard et al. does not teach a method by an adhesion promoter layer can be deposited to the surface of a plastic element while minimizing or eliminating defects therein, because such is not of concern in Hubbard et al.. Hubbard et al. is directed to producing an improved barrier layer (i.e., a barrier layer that exhibits improved vapor barrier performance) on a plastic element. This is said to be accomplished by applying and drying a primer composition on the plastic element and then applying a barrier coating solution. The goal of Hubbard et al. is to produce packaging that will improve the shelf life of foodstuffs. Thus, the primer composition and the barrier solution are typically applied to articles such as films, bottles, jars, plastic containers, blisterpacks and lidstocks, which are subsequently used to store food (see page 11, lines 25-30). Consequently, defects in the primer layer of Hubbard et al. are not likely to be noticed in the final product, nor would such defects be of any real consequence. The fact that Hubbard et al. states the primer

layer may be applied by any technique known to those of skill in the art supports this conclusion. Certainly, application of a primer or an adhesion promoter to a plastic element by means of a roller would not produce acceptable results if a paint coat is to be subsequently applied thereto.

Additionally, the method of the present invention preferably applies the adhesion promoter to the plastic element via one or more nozzles that allow the adhesion promoter to be dispensed at a relatively high flow rate. As opposed to being atomized and sprayed onto the plastic element like a typical paint or primer material, the method of the present invention dispenses the adhesion promoter from the nozzle(s) in a manner that cause it to flow over the surfaces of the plastic element upon contact therewith. This technique has been found to best produce an acceptable adhesion promoter layer after drying of the plastic element. For example, the flow rate of adhesion promoter through each nozzle may be between approximately 0.5-2.5 liters per minute - which flow rate is significantly higher than that of conventional spraying methods (see e.g., paragraphs 037-038 and 042-043).

Hubbard et al. does not teach or suggest such an adhesion promoter application method. Hubbard et al. does state that a primer layer may be applied by techniques such as roll coating, spray coating, and dip coating. However, aside from being impractical for use with the method of the present invention, due to their low flow rate, none of these coating techniques would cause the amount of agitation to the adhesion promoter that is produced by the present application method. Thus, while roll coating, dip coating, or spray coating will not produce an acceptable adhesion promoter layer for other reasons, they will not generally cause the splashing and/or foaming experienced during adhesion promoter

application according to the method of the present invention. Consequently, Hubbard et al. does not teach or suggest the adhesion promoter application method of the present invention nor, obviously, does Hubbard et al. teach or suggest how such an application method can be employed while causing minimal or no defects in a subsequently dried adhesion promoter layer.

Combining Cuellar et al. with Hubbard et al. does not overcome the deficiencies thereof. Cuellar et al. is not directed to a method of application like that taught by the present invention, nor to overcoming problems associated therewith. Rather, Cuellar et al. teaches only a spray coating process that takes place in a closed coating chamber. The spray coating process employed in Cuellar et al. is employed primarily to impart a paint coat to various vehicle components. Cuellar et al. states that a spray nozzle tip is used to atomize the coating material at a predetermined pressure, and to apply the coating material to the components. Thus, the actual coating material application process taught by Cuellar et al. is a typical painting process. As such, the combination of Cuellar et al. and Hubbard et al. still does not teach or suggest a method by which a supply of an adhesion promoter mixture can be flowed over a plastic element while creating minimal or no defects in a dried adhesion promoter layer that remains on the plastic element.

Having discussed both Hubbard et al. and Cuellar et al. in detail above, Applicant submits that there are material differences between the teachings thereof and the method of the present invention. As such, Applicant respectfully submits that Hubbard et al. in view of Cuellar et al. cannot support a rejection of claims 1-19, 21-23, 29-55, 58-60 and 66-73 under 35 U.S.C. § 103(a).

Rejection of Claims 20, 56 and 57 Under 35 U.S.C. § 103(a)

The Examiner rejected claims 20, 56 and 57 under 35 U.S.C. § 103(a) as being unpatentable over Hubbard et al. in view of Cuellar et al., and further in view of Browning (US 4,452,171). Applicant has amended independent claims 1 and 38 to more clearly describe the subject matter recited therein. As Applicant believes independent claims 1 and 38 to now recite allowable subject matter, claims 20, 56 and 57, which depend therefrom, would also be allowable.

Rejection of Claims 24, 25, 61 and 62 Under 35 U.S.C. § 103(a)

The Examiner rejected claims 24, 25, 61 and 62 under 35 U.S.C. § 103(a) as being unpatentable over Hubbard et al. in view of Cuellar et al., and further in view of Bartow (US 5,230,739). Applicant has amended independent claims 1 and 38 to more clearly describe the subject matter recited therein. As Applicant believes independent claims 1 and 38 to now recite allowable subject matter, claims 24, 25, 61 and 62, which depend therefrom, would also be allowable.

Rejection of Claims 26-28 and 63-65 Under 35 U.S.C. § 103(a)

The Examiner rejected claims 26-28 and 63-65 under 35 U.S.C. § 103(a) as being unpatentable over Hubbard et al. in view of Cuellar et al. and Bartow, and further in view of Kaneski et al. (US 5,575,560). Applicant has amended independent claims 1 and 38 to more clearly describe the subject matter recited therein. As Applicant believes independent claims 1 and 38 to now recite allowable subject matter, claims 26-28 and 63-65, which depend therefrom, would also be allowable.

Rejection of Claims 74-88, 90-92, and 95-101 Under 35 U.S.C. § 103(a)

The Examiner rejected claims 74-88, 90-92, and 95-101 under 35 U.S.C. § 103(a) as being unpatentable over Hubbard et al. in view of Cuellar et al., and further in view of Mashima et al. (WO 97/31694 A1, reference made to US 5,919,288 as the English equivalent). As Applicant does not believe Hubbard et al. in view of Cuellar et al. and Mashima et al. to teach or suggest the subject matter of claims 74-88, 90-92, and 95-101, the rejection is respectfully traversed.

Hubbard et al. and Cuellar et al. have been discussed in detail above. Mashima et al. teaches a method for recovering excess water-based paint from a paint booth having a recirculating water curtain. The Examiner asserts that Mashima et al. also shows a supply header in Figure 1 thereof, such as may be used by the method of the present invention. However, Applicant is unable to identify a supply header or another similar component in Figure 1 of Mashima et al. Nor does the written description of the invention discuss the use of a supply header.

In the present invention, a supply header may be located in the application portion of the enclosure to receive the adhesion promoter mixture and apply it to the plastic element. The supply header may have one or more nozzles for distributing the mixture over the plastic element. In one embodiment, the supply header receives the mixture from a gravity tank, in which case the mixture is also dispensed from the supply header by the force of gravity. Mashima et al. does not teach or suggest such an application method. In Mashima et al., the paint to be applied to the substrate (3) located in the spray booth (1) is supplied from a (presumably) pressurized paint tank (9), through a spray gun (2) connected thereto. No supply header is shown.

In any event, even if Mashima et al. were to teach the use of a supply header, the combination of Hubbard et al., Cuellar et al., and Mashima et al., still does not teach a method for applying an adhesion promoter mixture as described above with respect to the discussion of Hubbard et al. and Cuellar et al. Specifically, Mashima et al. combined with Hubbard et al. and Cuellar et al. still does not teach or suggest a method by which a supply of an adhesion promoter mixture can be flowed over a plastic element while creating minimal or no defects in a dried adhesion promoter layer that remains on the plastic element. Consequently, Applicant respectfully submits that Hubbard et al. in view of Cuellar et al., and further in view of Mashima et al. cannot support a rejection of claims 74-88, 90-92, and 95-101 under 35 U.S.C. § 103(a).

Rejection of Claim 89 Under 35 U.S.C. § 103(a)

The Examiner rejected claim 89 under 35 U.S.C. § 103(a) as being unpatentable over Hubbard et al. in view of Cuellar et al., and Mashima et al., and further in view of Browning. Applicant has amended independent claim 74 to more clearly describe the subject matter recited therein. As Applicant believes independent claim 74 to now recite allowable subject matter, claim 89, which depends therefrom, would also be allowable.

Rejection of Claims 93 and 94 Under 35 U.S.C. § 103(a)

The Examiner rejected claims 93 and 94 under 35 U.S.C. § 103(a) as being unpatentable over Hubbard et al. in view of Cuellar et al., and Mashima et al., and further in view of Bartow. Applicant has amended independent claim 74 to more clearly describe the subject matter recited therein. As Applicant believes independent claim 74



to now recite allowable subject matter, claims 93 and 94, which depend therefrom, would also be allowable.

### CONCLUSION

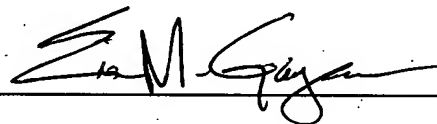
Applicant has amended claims 1, 4-9, 12, 13, 30, 38-46, 62, 64, 65, 69, 73, 74-80, and 93, and has canceled claim 2. As a result of the amendments, claims 1, and 3-101 remain pending in the present application. Applicant has also distinguished the subject matter of the present invention over the teachings of the references cited as prior art by the Examiner.

Therefore, Applicant respectfully submits that the present application is now in condition for allowance, and entry of the present amendment and allowance of the application as amended is earnestly requested. Telephone inquiry to the undersigned in order to clarify or otherwise expedite prosecution of the present application is respectfully encouraged.

Respectfully submitted,

Date: 07-13-04

By: \_\_\_\_\_



Eric M. Gayan  
Attorney for Applicant  
Registration No. 46,103  
Standley Law Group LLP  
495 Metro Place South  
Suite 210  
Dublin, Ohio 43017-5319  
Telephone: (614) 792-5555  
Facsimile: (614) 792-5536  
E-mail: egayan@standleyllp.com